WO 2005/062897 PCT/US2004/043157

## We claim:

- 1. Crystalline Form I of Ezetimibe.
- 2. The crystalline form of claim 1, having an X-ray powder diffraction pattern with Cu  $K_{\alpha l}$  radiation comprising peaks at about  $13.8 \pm 0.1$ ,  $15.8 \pm 0.1$ ,  $24.5 \pm 0.1$ , and  $26.3 \pm 0.1$  degrees  $2\theta$ .
- 3. The crystalline form of claim 2, further comprising peaks at about 7.9  $\pm$  0.1, 22.9  $\pm$  0.1, and 23.4  $\pm$  0.1 degrees 2 $\theta$ .
- 4. The crystalline form of claim 1, having an X-ray powder diffraction pattern substantially as shown in Figure 1.
- 5. The crystalline form of claim 1, having an infrared absorption spectrum comprising a broad peak at about 3270 cm<sup>-1</sup>.
- 6. The crystalline form of claim 1, having an infrared absorption spectrum substantially as shown in Figure 2.
- 7. The crystalline form of claim 1, having endothermic absorption peak at about 163 °C by differential scanning calorimetry.
- 8. The crystalline form of claim 1, having a differential scanning calorimetry curve substantially as shown in Figure 5.
- 9. A process for preparing crystalline Form I of ezetimibe, comprising
  - a. reacting 3-{2-[3-(fluorophenyl)-3-(trimethyl silyloxy)-propyl]-3-(4-fluoro phenyl amino)-3-(4-trimethyl silyloxyl phenyl)-1-oxo-propyl}-4-(S)-phenyl oxazolidin-2-one with bistrimethyl silyl acetamide;
  - b. quenching the reaction solution of step (a);
  - c. adding sulfuric acid in an alcoholic solvent to the quenched reaction solution; and
  - d. isolating solid Form I of Ezetimibe.
- 10. Crystalline Form I of Ezetimibe, prepared according to the process of claim 9.
- 11. A pharmaceutical composition comprising a prophylactically or therapeutically effective amount of the crystalline form of claim 1 and one or more pharmaceutically acceptable excipients.
- 12. A compound of Ezetimibe, which comprises crystalline Form II.

WO 2005/062897 PCT/US2004/043157

13. The compound of claim 12, wherein said crystalline Form II has an X-ray diffraction pattern with Cu  $K_{\alpha l}$  radiation comprising peaks at about  $8.2 \pm 0.1$ ,  $16.4 \pm 0.1$ ,  $20.2 \pm 0.1$ , and  $29.7 \pm 0.1$  degrees  $2\theta$ .

- 14. The compound of claim 13, wherein said peaks further comprise 13.6  $\pm$  0.1 degrees  $2\theta$ .
- 15. The compound of claim 12, wherein said crystalline Form II has an IR spectrum comprising consecutive peaks at about 3438 and about 3272 cm<sup>-1</sup>.
- 16. The compound of claim 12, wherein said crystalline Form II has a DSC spectrum having an endothermic peak at about 164 °C.
- 17. The compound of claim 12, wherein said Ezetimibe has an X-ray diffraction pattern substantially same as Figure 6.
- 18. The compound of claim 12, wherein said Ezetimibe has an IR spectrum substantially same as Figure 7.
- 19. A process for preparing crystalline Form II of Ezetimibe comprising
  - a. providing pressure to crystalline Form I of Ezetimibe.
- 20. The process of claim 19, wherein said pressure is between about 4-7 tonnes/cm<sup>2</sup>.
- 21. The process of claim 19, wherein said pressure is between about 5-6 tonnes/cm<sup>2</sup>.
- 22. The process of claim 19, wherein said pressure is provided for about 1-120 seconds.
- 23. The process of claim 19, wherein said pressure is provided for about 30-60 seconds.
- 24. A compound of Ezetimibe, which is prepared according to the process of claim 19.
- 25. A pharmaceutical composition comprising a prophylactically or therapeutically effective amount of the compound of claim 12 and one or more pharmaceutically acceptable excipients.
- 26. A compound of Ezetimibe, which comprises crystalline Form I and crystalline Form II of Ezetimibe.

WO 2005/062897 PCT/US2004/043157

- 27. An amorphous form of Ezetimibe.
- 28. The amorphous form of claim 27, having an X-ray diffraction pattern substantially same as Figure 11.
- 29. The compound of claim 27, having an IR spectrum substantially same as Figure 12.
- 30. A pharmaceutical composition comprising a prophylactically or therapeutically effective amount of the amorphous form of claim 27 and one or more pharmaceutically acceptable excipients.
- 31. A method of treating or preventing a high cholesterol problem comprising administering a patient in need of such treatment or prevention with a prophylactically or therapeutically effective amount of Ezetimibe comprising crystalline Form I of Ezetimibe.
- 32. A method of treating or preventing a high cholesterol problem comprising administering a patient in need of such treatment or prevention with a prophylactically or therapeutically effective amount of Ezetimibe comprising crystalline Form II of Ezetimibe.
- 33. A method of treating or preventing a high cholesterol problem comprising administering a patient in need of such treatment or prevention with a prophylactically or therapeutically effective amount of Ezetimibe comprising an amorphous form of Ezetimibe.